

## A NEW SPECIES OF *USCANA* GIRAULT (TRICHOGRAMMATIDAE: HYMENOPTERA) FROM THE EGGS OF FIELD BRUCHIDS<sup>1</sup>

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A new parasitoid *Uscana bruchidiusi* on the eggs of four species of *Bruchidius*, namely *B. pygmaculatus*, *B. saundersi*, *B. aureus*, *B. multilineolatus*, all attacking *Albizzia lebbek* in the field, has been described. A key to the known Indian species of genus *Uscana* is also given.

**Key words:** *Uscana bruchidiusi* sp. nov., *Bruchidius pygmaculatus*, *B. saundersi*, *B. aureus*, *B. multilineolatus*, *Albizzia lebbek*

### INTRODUCTION

*Uscana* Girault is a small genus of Trichogrammatidae (Girault 1911; Dout and Viggiani 1968) and includes about 20 species, which are mostly associated with the eggs of different bruchid beetles (Mani 1935; Viggiani 1979; Fursov 1987; Huis *et al.* 1991; Pajni and Sood 1999). Only two species have so far been recorded from India i.e. *Uscana mukerjii* (Mani) from the eggs of stored product pest bruchids and *Uscana femoralis* Pajni and Sood from the eggs of *Conicobruchus albopubens* (Pic.) attacking *Cyamopsis psoraloides* DC. A third species has been found attacking the eggs of four species of genus *Bruchidius*, namely *B. pygmaculatus* Arora, *B. saundersi* (Jek.), *B. aureus* Arora, and *B. multilineolatus* Arora, all of which attack the green seeds of *Albizzia lebbek* Benth. Incidentally, only the above mentioned three species have been recorded from the Oriental region, with the remaining 17 known species having been recorded from Palearctic and Nearctic regions. The present species, though distinct from all described species, shows resemblance with *Uscana mukerjii*, as both fall in the same group of species formulated on the basis of arrangement of placoid sensilla in the club of the antenna (Steffan 1954; Pajni and Singh 1973).

### OBSERVATIONS

The Family Trichogrammatidae can be distinguished from other families of Superfamily Chalcidoidea by the presence of 3-segmented tarsus without a stergil on the foretarsus and broad forewing with marginal and stigmal veins forming a single curve. Genus *Uscana* can be separated from other genera of Trichogrammatidae by a combination of characters including antenna with one or two annulets, 4-segmented antennal club with placoid, fungoid and chaetoid sensilla, straight and thickened marginal vein and stigmal vein with a constricted neck. The distribution of placoid sensilla on the female antennal club separates different species.

### KEY TO THE SPECIES OF GENUS *USCANA*

1. Male with hind femora normal..... 2
- Male with hind femora swollen ..... *femoralis* Pajni & Sood.
2. Female antennal club with placoid sensilla formula 2:1:0:1  
..... *mukerjii* (Mani)
3. Female antennal club with placoid sensilla formula 2:1:2:2  
..... *bruchidiusi* sp. nov

### *Uscana bruchidiusi* sp. nov (Figs 1-7)

#### Description

**Female:** Body short, flat, length 0.30 to 0.42 mm. Head and thorax pale yellow, abdomen slightly darker than other body parts; legs pale, becoming lighter at apices; eyes and ocelli crimson red, head almost as long as wide in front view, not wider than thorax. Mandibles quadridentate. Pedicel 1.45 times as long as wide; annulets two, normal; antennal socket with its upper margin at much higher level than lower margin of eye; club 3.2 times as long as its greatest width at first segment, with placoid sensilla 2:1:2:2, its fourth segment pointed apically, with sides of the first segment 1.5 times as long as second segment; eyes aetose.

Mesoscutum 1.56 times as wide as long, with two pairs of short setae, with finely reticulate sculpture and stripe of long reticulations in middle. Scutellum 2.2 times as wide as long. Postphragma reaching abdominal tergite IV, almost equal to length of mesonotum; scutum and scutellum 53:50.

Forewing twice as long as its greatest width; fringe about 0.24 of greatest width of wing; costal cell 1.84 times as long as marginal vein and 2.2 times as long as wide, with 3 costal setae, 5 dorsal and 3 ventral hairs; discal setulae and veinlets obscure. Hindwing about 6.75 times as long as its greatest width, its fringe 1.31 times the greatest width of free membrane.

Abdomen 1.69 times as long as thorax; Ovipositor not protruding, almost equal to length of midtibia (47:48).

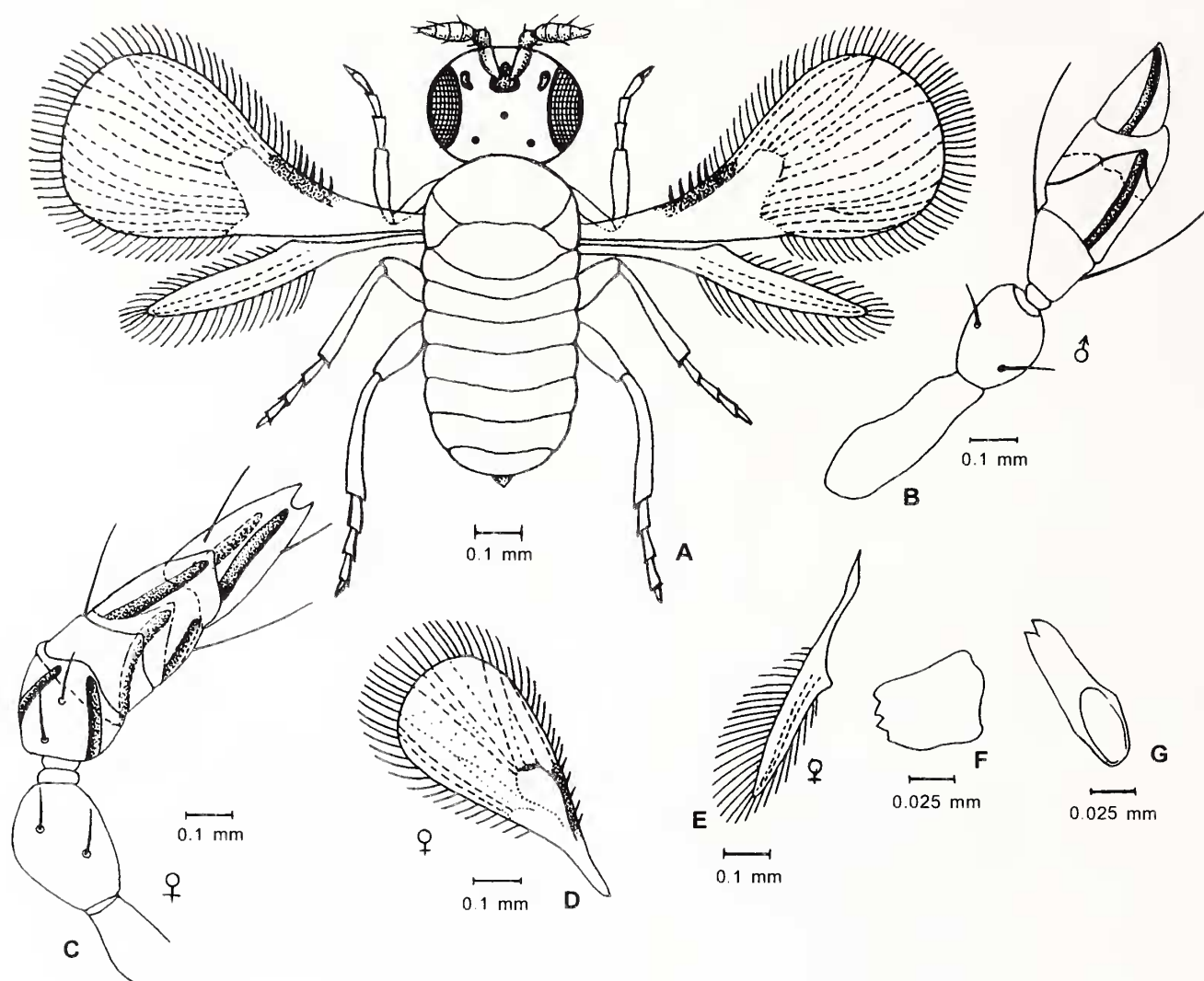


Fig. 1: *Uscana bruchidiusi* sp. nov.;

A. Male; B. Antenna male; C. Antenna female; D. Forewing female; E. Hindwing female; F. Mandible female, G. Genitalia male

**Male:** Length 0.30 to 0.46 mm. Pedicel 1.20 times as long as wide; antennal annulets 2; club 2.4 times as long as its greatest width at first segment and 1.6 times as long as segments 1 and 2 combined, with second and fourth segments subequal; distribution of placoid sensilla 0:1:0:1.

Forewing 2.25 times as long as its greatest width, with fringe one third of its greatest width; discal setulae arranged in 17 rows, with 14 of them uniform. Hindwing 6.92 times longer than its greatest width; fringe 0.65 times the greatest width of free membrane. Male genitalia with phallobase 2.92 times as long as wide.

**Material:** Holotype: Male, from eggs of *Bruchidius pygomaclatus*, *B. saundersi*, *B. aureus* and *B. multilineolatus* attacking seeds of *Albizia lebbek* Benth (Sarin) Coll. P.K. Tewari, 16.ix.1999; Chandigarh. Paratypes: 6 males, 4 females; collection data same as holotype. Type

material in Entomology Section, Department of Zoology, Panjab University, Chandigarh; under Accession No. 138.

**Distribution:** Shivalik forest area near Chandigarh and Chandigarh-Mullanpur road.

**Biology:** The species, in nature, attacks the eggs of four species of *Bruchidius* infesting *Albizia lebbek* in the wild. However, it is capable of parasitising the eggs of *Callosobruchus maculatus* (Fab.) in the laboratory and is being exploited for accepting the eggs of stored product bruchids as its host.

**Etymology:** The species has been named after its host *Bruchidius*, four species of which are attacked by the egg parasitoid.

**Discussion:** The new species is different from both *U. mukerjii* and *U. femoralis* as its body is entirely pale yellowish, compared to the black body of *U. mukerjii* and partly black body of *U. femoralis*. Taxonomically, the new

species is close to *U. mukerjii* as the first segment of the female club in both the species carries two placoid sensilla. This is according to the classification of *Uscana* species by Steffan (1954), extended by Pajni and Singh (1973). Furthermore, *U. femoralis* is distinct in having characteristic greatly swollen hind femora in the male.

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